ABSTRACT

Applicant : CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

Title: A simulation and digital synthesis method of an oscillating phenomenon

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The invention refers to a digital simulation method of a non-linear interaction between an excitation source and a wave in a resonator, and may be applied, in particular, to the real time synthesis of digital signals representative of an oscillating phenomenon such as the sound produced by a musical instrument.

According to the invention, the digital signals are computed from equations whose the solution corresponds to the physical event of the phenomenon to be simulated which is translated, at each time and at each point of the resonator, by a impedance or admittance relation between two variables representative of the effect and of the cause of said phenomenon and the impedance or admittance equation is transcribed directly in the form of a linear filter including delays, in order to effect a non-linear interaction between the two variables of the impedance or admittance relation.

Figure : 1